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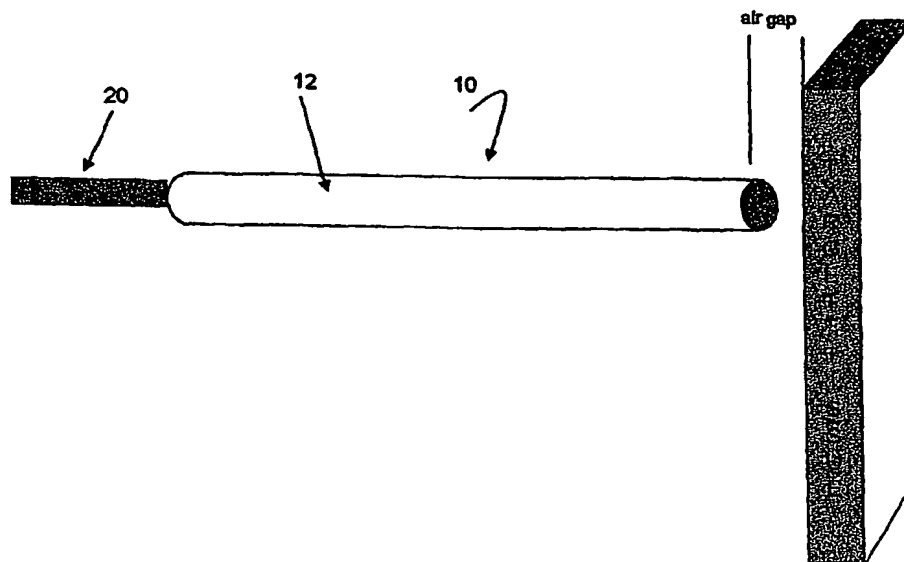
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR MEASURING TISSUE PERFUSION



(57) Abstract: Apparatus for measuring microcirculatory flow of a target tissue without the necessity for direct contact of a probe is disclosed. The apparatus includes a probe (10) arranged to generate a pulsed source of infrared light (16) and a matched infrared sensor (18) which transduces variations in the reflected light to an electric signal and a signal processor which compares the signal at a first time when the pulsed light source is on with a second time when the pulsed light is off. The signal is processed to reduce or ameliorate the effect of the ambient light in the signal and the Tissue Perfusion Index (TPI) is then calculated. Without the need to contact tissue, the apparatus can be used to measure the TPI for chronic ulcers on the extremities, the surface of the retina, the vascular pulp within a tooth or the surface of internal organs accessed by fiber optic or endoscopic means.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl. ⁷ : A61B 5/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DWPI and keywords: perfusion and ambient and light and similar terms		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5846190 A (WOEHRLE) 8 December 1998 Column 1 line 53 to column 2 line 8 Column 3 lines 24 to 42	1,2,6,12
Y		3-5,7,8
X	US 5995859 A (TAKAHASHI) 30 November 1999 Column 4 lines 35 to 45	1,2,6,12
Y		3-5,7,8
P,X	US 2003/0114737 A1 (NAGAI et al.) 19 June 2003 Paragraph 59	1,2,6,12
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
Date of the actual completion of the international search 28 November 2003		Date of mailing of the international search report 15 DEC 2003
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929		Authorized officer <i>D. Melhuish</i> DAVID MELHUISE Telephone No : (02) 6283 2426

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2001046348 A (OMEGA WAVE KK) 20 February 2001 Abstract	9,13
X	US 5995856 A (MANNHEIMER et al.) 30 November 1999 Column 1 line 64 to column 2 line 8 Column 3 lines 51 to 67	9,13
Y	US 5318022 A (TABOADA et al.) 7 January 1994	10,11
X	US 5318022 A (TABOADA et al.) 7 January 1994 Column 4 lines 38 to 53	9,13
Y		10,11
Y	US 3796213 A (STEPHENS) 12 March 1974 Column 2 lines 50 to 55	3-5,7,8,10,11
X	US 6083158 A (BEARMAN et al.) 4 July 2000 Column 2 lines 29 to 64	9,13
Y		10,11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU03/01379

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member	
US	5846190	DE	19537646
		JP	9108203
US	5995859	JP	7222737
US	20030114737	JP	2003/0153881
JP	2001046348		
US	5995856		
US	5318022		
US	3796213	AU	33187/71
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END OF ANNEX			